

Chapter S – I-66 Executive Summary



EXECUTIVE SUMMARY

S.1 Proposed Action

This document identifies and assesses the environmental impacts associated with the proposal to construct a new four-lane divided interstate in Pulaski and Laurel Counties, Kentucky and was conducted in accordance with all laws, regulations and executive orders pertaining to the National Environmental Policy Act of 1969. The proposed project would complete a segment of the Transamerica Corridor legislated by Congress in 1991 and would involve the construction of a new facility from the Somerset Northern Bypass (I-66)¹ project in Pulaski County, Kentucky, in close proximity to KY 80 to Interstate 75, between the cities of London and Corbin in Laurel County, a distance of approximately 28 miles. This would provide a limited access facility from I-75 in the east to I-65 in the west. The Kentucky Transportation Cabinet (KYTC) is administering the project. The Federal Highway Administration (FHWA) is designated as the lead federal agency. This document covers the inception of the project from the national level, the investigation of the regional benefits of I-66 and the local impacts from the proposed alternatives.

S.1.1 Purpose and Need

The purpose of this project is to provide improved linkage between the cities of Somerset and London, Kentucky. In addition, the proposed transportation improvement will serve to enhance the regional travel system by providing additional mobility and access within the project area, creating an interstate to interstate link between I-65 and I-75, thereby providing connectivity between the region and larger population centers. The proposed I-66 Somerset to London project is expected to provide a safe and efficient facility, prevent future traffic congestion and reduce the number of accidents, as well as contribute to the economic development along the I-66 Corridor, while fulfilling the Congressional vision for infrastructure enhancement outlined in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and subsequently the 1995 National Highway System Designation Act amended Section 1105 (c) of ISTEA.

¹ SAFETEA-LU designation including Somerset Northern Bypass and this project as I-66 (www.fhwa.dot.gov/safetealu/legis.htm)

Additional information on the purpose and need, including how the proposed alternatives meet these goals and objectives, refer to sections 2.6 and 2.7 of this document.

S.1.2 System Linkage

In combination with the Somerset Northern Bypass, which is under construction, Interstate 66 would provide a link for traffic from the Cumberland Parkway, via the Northern Bypass, to Interstate 75 to the east. The combination of these facilities provides system linkage between I-75 and the Louie B. Nunn (formerly Cumberland) Parkway, continuing on to I-65, enhancing regional mobility through the creation of an interstate to interstate link within the project region.

S.1.3 Modal Connections

I-66 would serve to connect the study area with other modes of transportation, such as rail, and motor carrier/trucks, as outlined below:

Southern Kentucky Intermodal Park: The Southern Kentucky Intermodal Park is planned to provide a first-class facility with enhanced rail that would offer truck-to-rail and rail-to-truck intermodal services, along with product transfer, storage and processing capabilities. The enhanced goods transportation would provide economic opportunities for the region. The facility located southeast of Somerset, KY would provide connectivity between modes of transport. The interstate system in this region currently provides a north-south traffic flow with I-75. The main rail line for Norfolk Southern Railway is also north-south. While the Intermodal Park would provide system connectivity, the construction of I-66 would provide an east-west link to the intermodal park, further enhancing the economic possibilities of the project.

Somerset Northern Bypass: The Somerset Northern Bypass is designed to reduce the traffic congestion and distribution problems associated with the Louis B. Nunn (Cumberland) Parkway through Somerset, KY. Interstate 66 would provide a link for traffic from the Parkway, via the Northern Bypass, to Interstate 75 to the east. The combination of these facilities provides system linkage between I-75 and the Parkway and enhances regional mobility.

Additional segments of Interstate 66: The proposed segment of I-66 from Somerset to London, KY will provide a facility that will serve to enhance the regional travel system, providing additional mobility and access within the project area and between the region and larger population centers. The completion of additional segments of I-66 across Kentucky and the nation would further connect the region to outside opportunities for development.

S.1.4 Increased Travel Safety

The proposed project would improve travel safety through the reduction of vehicular crashes and at-grade intersections. High accident locations account for 28% of the length of the existing KY 80. The existing corridor contains several high traffic volume at-grade intersections. The elimination of the at-grade intersections, combined with the proposed design would improve travel safety within the corridor.

▲ For additional information see sections 2.3 and 2.7.18

S.1.5 Economic Development

A large portion of the I-66 Corridor has historically had limited access to economic development opportunities, has poverty rates well above, and median income levels well below, the national average. With an improved competitive position, resulting from reduced transportation costs, enhanced reliability for the delivery of goods, and improved access to the employment base, I-66 can expect to assist communities in attracting significantly more economic production activity. The Southern Kentucky Corridor planning and economic feasibility study conducted in 2000 estimated that the construction of the Southern Kentucky Corridor could bring over 57,000 person-years of work, increase the earnings in the region by \$1.75 billion each year and increase total personal income by \$2.35 billion per year.

▲ For additional information see sections 2.2.4 and 2.7

S.1.6 Consistency with Other Plans

The proposed project is consistent with the plans and legislation for Corridor 3, a congressionally mandated High Priority Corridor of national significance. The

proposed project is located on page 320 of the conforming state transportation improvement program (Kentucky Statewide Transportation Improvement Program (STIP), Fiscal Years 2001-2006; Kentucky Transportation Cabinet) approved October 2000 and in amendment 2004.109 of the Fiscal Years 2005-2007 STIP approved March 2005. Adverse effects, associated with this project, to those proposed actions are not anticipated.

Historically, Pulaski County has drawn on the workforce of surrounding counties, accommodating periods of rapid manufacturing growth. That trend persists today due to continuing economical, educational and technological advancements that benefit not only the county but the region. Economic factors for the area indicate that counties bordering Pulaski and Laurel Counties have generally experienced the same economic trends as Pulaski and Laurel Counties, demonstrating a need not only for local economic growth and development but also for regional economic growth and development. The Progress Kentucky 2003, Comprehensive Economic Development Strategy (CEDS), for Pulaski County states:

“For the LCADD to sustain regional development, it must sustain and augment regional economic development centers and an overall growth concept, and it must identify key strategies that can accomplish such goals.”

The LCADD CEDS cites the need for direct connections to the nation’s northeastern industrial heartland and to important north-south connectors such as I-65 and I-75. The CVADD Regional Transportation Concept Plan identifies economic development as an essential part of preserving the vitality of the region. In addition, the plan states that to experience substantial economic development and maximize tourism revenue the CVADD region must have a transportation infrastructure that will provides access to major highways.

The LCADD Regional Concept Plan identifies the need for better access to the industrialized heartland of the nation’s east and Midwest making it more desirable to industry.

S.1.7 Logical Termini and Independent Utility

The western project logical terminus (end point) has been established to link with the Somerset Northern Bypass project in Pulaski County, Kentucky, in close proximity to KY 80. The Somerset Northern Bypass is also a segment of the Transamerica Corridor. The eastern terminus has been established to link with Interstate 75, between the cities of London and Corbin in Laurel County. In conjunction with the Somerset Northern Bypass, this project will provide a high speed interstate route connecting the Cumberland Parkway (and I-65, a major north-south interstate further to the west) to I-75. Interstate 75 is a major interstate that runs north and south throughout Kentucky.

S.2.1 Alternatives

The No-Build Alternative

No Action Alternative

The No-Action Alternative is just as the name implies, involving no construction of I-66 from Somerset to London, and leaving the existing highway system in place. This alternative does not meet the goals and objectives of the Purpose and Need for the project (presented in chapter 2). It would not advance the completion of the Southern Kentucky Corridor (I-66), would not enable a controlled-access link between two sections of controlled access roadway (I-65 and I-75), would not facilitate future economic development and would not improve the transportation system linkage of the project area to larger population centers.

General Description of the Build Alternatives

Eleven Build Alternatives are being considered as locations for potential I-66 Somerset to London alignment options, in addition to a No Build alternative in the area. As previously stated this segment of the I-66/Southern Kentucky Corridor extends eastward from the proposed Somerset Northern Bypass (I-66) in Pulaski County, through the Daniel Boone National Forest, to I-75 south of the existing KY 80/I-75 interchange in Laurel County, Kentucky. The Pulaski County alternatives developed for this project show two individual termini on the eastern end of the project. These termini both tie into the Somerset Northern Bypass (I-66) in the vicinity of existing KY80.

The Somerset Northern Bypass is currently in the right-of-way authorization phase but the purchase of right-of-way in the vicinity of the Somerset to London segment of I-66 will be held until the selection of a preferred alternative. If a build alternative be selected as the preferred alternative the project tie to the Somerset Bypass will be identified and interchange locations will be finalized.

The alternatives are presented as Pulaski County Alternatives and Laurel County Alternatives with commonality at the Rockcastle River Crossing. A complete I-66 Somerset to London alternative is the combination of any one of the Pulaski County alternative with any one of the Laurel County alternatives.

A brief description of each alternative is provided below.

Alternative K

Alternative K follows the same alignment as Alternative B to Doolin Knob then Alternative K travels north and follows KY 80 Modified to the existing crossing point of the Rockcastle River.

KY 80 Shifted

The first two miles of Alternative KY 80 Shifted is on a new location from a point on the proposed Somerset Northern Bypass eastward to existing KY 80 at the KY 461 Intersection. The Alternative runs parallel to KY 80 while utilizing KY 80 as a frontage road throughout the alignment. It transitions back to KY 80 about 4000' past Tommy Rock Church Road before crossing the Rockcastle River at the existing crossing point.

KY 80 Modified

The first two miles of Alternative KY 80 Modified is on a new location from a point on the proposed Somerset Northern Bypass eastward to existing KY 80 at the KY 461 Intersection. This Alternative utilizes KY 80 as part of the Interstate while providing a frontage road throughout the alignment to the north. This alignment crosses the Rockcastle River at the existing crossing point.

Alternative B

Alternative B begins at the proposed Somerset Northern Bypass and moves eastward along the southern part of the corridor. Approximately 3,500 feet east of KY 692 the alignment transitions north, crossing SR 1003 and KY 80. Alternative B then

parallels KY 80 to the north before transitioning back and crossing the Rockcastle River at the existing crossing location.

Alternative D

Alternative D begins at the proposed Somerset Northern Bypass and travels eastward along the southern part of the corridor. The alignment continues eastward approximately 4,000 feet south of KY 80, crossing SR 1003 and Buck Creek, and turns northerly to cross SR 1675. Alternative D continues easterly, tying into KY 80 to cross the Rockcastle River at the existing crossing location.

Alternative B-D

As the name suggests, this is a combination of Alternatives B and D. Alternative B-D begins at the proposed Northern Bypass, moving eastward along the B alignment until crossing KY 80 near the intersection with Price Valley Road. From this point Alternative B-D is on new location, moving southerly to tie into the D alignment west of the crossing of Wadkins-Arthur Road. Alternative B-D then follows the D alignment to tie to KY 80 before crossing the Rockcastle River at the existing crossing location.

Alternative G

Alternative G utilizes the existing crossing at the Rockcastle River and follows KY 80 for 3 miles before turning to the southeast and tying to I-75 at the eastern terminus. Alternative G is the northern most of the three proposed Build Alternatives in Laurel County.

Alternative H

Alternative H utilizes the existing crossing at the Rockcastle River and follows KY 80 for 1.5 miles before turning southeast and transitioning to I-75. Alternative H is the middle of the three proposed Build Alternatives in Laurel County.

Alternative I

Alternative I would begin at the existing Rockcastle River crossing and move eastward utilizing 0.5 miles of the existing KY 80 before transitioning southeast to I-75. Alternative I would be located south of Willie Green Road and crosses KY 192 north of Cold Hill School. Alternative I is the southern most of the three proposed Build Alternatives in Laurel County.

Alternative L

Alternative L follows Alternative G eastward from the existing crossing of the Rockcastle River to KY 1535. The alignment would then turn south to cross Sinking Creek and joins Alternative H approximately 1400' prior to Willie Green Road. After crossing Maple Grove Road, Alternative L continues south to intersect Alternative I close to Sizemore Road and follows the same alignment as Alternative I to I-75.

Alternative M

Alternative M follows Alternative G from the Rockcastle River to approximately Gregory Lane and continues south to join Alternative I close to Sizemore Road. Alternative M follows the same alignment as Alternative I to I-75.

Figure S.2.1-1 on the following page shows the locations of each of the previously described alternatives within the project area, including the two potential termini with the Somerset Northern Bypass. For more detailed alternative mapping please refer to the individual alternative maps located at the end of chapter 3.

S.2.2 Design Features

The project would be designed according to the Kentucky Department of Transportation standards for interstate facilities with depressed medians. The proposed design would involve sufficient right-of-way for the construction of a four-lane facility.

The project is proposed as an addition to the National System of Interstate and Defense Highways (Interstate System). Current policies on the design standards for the Interstate System require that the facility have full control of access. Therefore, pedestrian and bicycle usage would be prohibited. Access to the new roadway would be restricted to interchanges at various proposed locations. The proposed roadway would feature two 12 ft. driving lanes in each direction, 12 ft. outside shoulders, and a minimum median width of 60 ft. with 6.0 ft. inside shoulders and an outside slope ratio of 6:1.

Please refer to Section 3.2.3 in chapter 3 for detailed design parameters and a graphical depiction of the typical section for the proposed I-66.

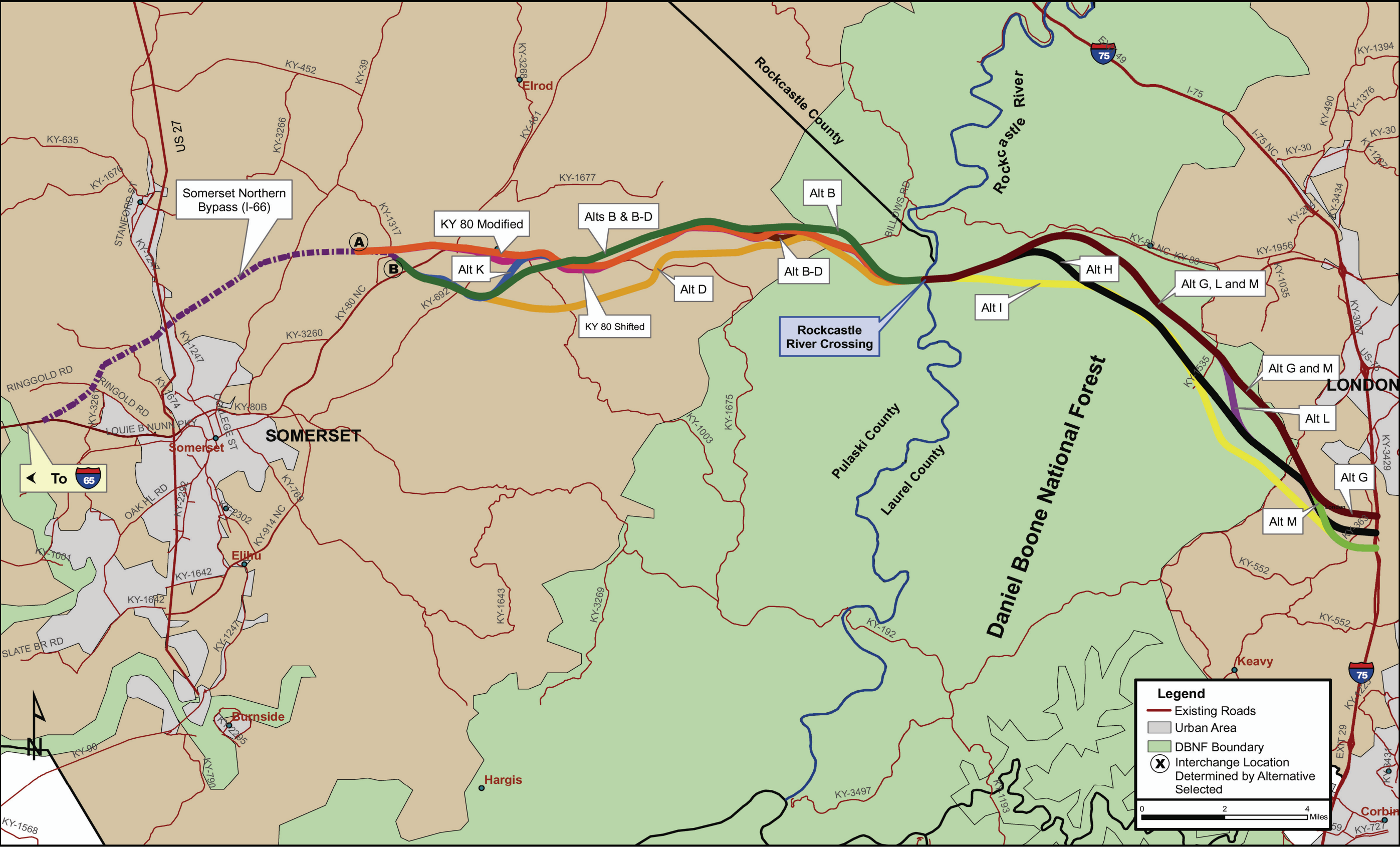


Figure S.2.1-1 – Project Area Showing the Somerset Northern Bypass (I-66) and the I-66 Somerset to London Project Alternatives

S.2.3 Projected Costs

Table S.2.3-1 shows the estimated project costs, by alternative, for the proposed I-66 project. Costs are broken down into construction costs, right-of-way costs and utility costs.

S.2.4 Alternatives Previously Considered But Eliminated

Other facility types: From the 1991 Transamerica Feasibility it was recommended that a traditional interstate-type highway or superhighway be considered for further study. It was determined that from an economic benefit standpoint that the other alternative could not be justified. The 1997 feasibility study concluded that of the interstate-type highway and superhighway, that a traditional interstate with a design speed of 70 mile per hour presented the best alternative from a cost/benefit standpoint.

The KY 80 upgrade alternative was eliminated from further study based on cost to complete calculations; access control and right-of-way issues; and geometric design and operational issues. *While the KY 80 alternative was not considered in its entirety, it was recognized that from Somerset to east of the Rockcastle River, the selected corridor should include portions of the KY 80 corridor to the maximum extent possible.*

The Middle alternative was eliminated from further study based on low levels of predicted traffic service, impacts to undisturbed natural areas, potentially prohibitive impacts to Kentucky Wild River and public input.

The South alternative was eliminated from further study based on below average traffic use, potential impacts to pristine areas of the DBNF, potential impacts to endangered species, high construction cost and overwhelming public opposition to south alternative.

Mass Transit alternatives include the implementation of bus routes and light rail, neither of which are present in the project area. A study entitled *Regional Transportation Planning and Non-Highway Alternative*

*Consideration*² highlights the lack of mass transit options in the project area. There is an overall lack of bus, rail and other mass transport for the general public. The development of mass transit alternatives is not reasonable in the sparsely populated project area and would not meet the Purpose and Need of this project.

▲For further discussion see Chapter 3 - Alternatives

S.3 Environmental Consequences

S.3.1 Land Use Impacts

The proposed Build Alternatives would all result in similar direct changes to land use within the project area. From Somerset to London, land that is presently utilized for agricultural, residential, or commercial usage would be converted to highway right-of-way. Due to the crossing of the Rockcastle River at the present crossing location, the land use impacts would be minimized in that area because of existing right-of-way limits.

Land use at each of the proposed interchanges is currently agricultural and/or low density residential.

The proposed interchanges could open the land at the interchanges to strip development commonly found at interchanges, e.g., gas stations, fast food franchises and motels. The interchanges would allow for increased use of existing facilities in Somerset and London by area residents.

The new highway facility would be a full-controlled access facility, which by design, controls development to areas that have access to the interstate.

Therefore, a secondary impact would occur at the proposed interchanges, which are the areas most likely to develop. Interchanges have been proposed at key local roads that would be critical to local area traffic patterns. A continuation of these secondary impacts is the increased potential for land currently in agricultural use, to be converted for commercial and industrial use as the interstate improves access to and from the area making it more valuable to commercial and industrial trade. This is a common trend, as new facilities redirect the focus of the community toward the interstate.

▲For further discussion see section 5.3.1 and Chapter 7 – Indirect and Cumulative Effects

S.3.2 Community Services Impacts

Schools
The proposed project will not have a direct affect on any of the public school systems throughout the project corridor because no educational facilities are located within any of the proposed alternatives right-of-way.

Fire and Police
The proposed project will not have a direct impact on police and emergency services since none of their facilities are located in or adjacent to any of the proposed alternatives.

Hospitals
None of the services provided by hospitals within the study area will be impacted or impaired by the proposed alternatives. The proposed facility would provide a high speed, efficient facility for transportation to hospitals located in Somerset and London.

Utilities
No long-term impacts are anticipated for area utilities. Utility relocations required by the Build Alternatives would be coordinated with local service providers. Although service disruptions could result, these would be short-term during project construction.

▲For more information see section 5.3.2

Table S.2.3-1 – Estimated Costs Associated with the Construction of Interstate 66 by Alternative (in dollars)

	Construction Costs						Right-of-Way Costs	Utilities	
Alternative	Pavement Cost	Bridge Cost	Earthwork Cost	Appurtances	Mitigation & Enhancements	Mobilization & Demobilization	ROW	Utilities	Total
Pulaski County Alternatives									
Alternative B	33,362,448	15,482,000	61,236,960	22,016,282	6,604,884	5,944,396	12,200,000	4,675,000	161,521,970
Alternative B-D	31,995,700	27,064,000	49,554,484	21,722,837	6,516,851	6,158,424	12,600,000	3,750,000	159,362,296
Alternative D	32,907,411	27,925,400	66,705,244	25,507,611	7,652,283	6,887,055	12,300,000	2,735,000	182,620,004
Alternative K	40,482,129	14,116,400	33,590,220	17,637,750	5,291,325	5,000,302	13,200,000	9,275,000	138,593,126
Alternative KY80 Modified	43,340,222	12,072,200	36,513,892	18,385,263	5,515,579	5,212,222	13,100,000	10,105,000	144,244,378
Alternative KY80 Shifted	41,205,984	11,734,800	43,888,124	19,365,782	5,809,734	5,490,199	18,100,000	10,430,000	156,024,623
Laurel County Alternatives									
Alternative G	50,200,000	24,151,000	49,200,000	24,710,200	7,413,060	7,005,342	40,100,000	9,315,000	212,094,602
Alternative H	47,200,000	23,750,000	58,000,000	25,790,000	7,737,000	7,311,465	32,700,000	8,915,000	211,403,465
Alternative I	43,400,000	28,710,000	65,200,000	27,462,000	8,238,600	7,785,477	17,100,000	6,475,000	204,371,077
Alternative L	46,400,000	28,200,000	45,600,000	24,040,000	7,212,000	6,815,340	23,300,000	7,315,000	188,882,340
Alternative M	48,700,000	26,100,000	48,800,000	24,720,000	7,416,000	7,008,120	23,400,000	7,105,000	193,249,120

² Regional Transportation Planning and Non-Highway Alternative Consideration; I-66 Between Somerset and London; KYTC, December 2002.

S.3.3 Social and Economic Impacts

Residential Relocations

The alternative combination of KY80 Shifted/G would require the most residential relocations. The construction of this alternative would require the relocation of 78 single family houses and 73 mobile homes. The relocations for each alternative are shown in Table S-1 at the end of this chapter.

Business Relocations

The build alternatives would result in a small number of business displacements. The alternative combination of KY80 Shifted/H would require the relocation of six businesses. Many alternative combinations do not require any business relocations. The relocation totals for each alternative are shown in Table S-1 at the end of this chapter.

▲For more information see section 5.3.3

Community Cohesion

The proposed Build Alternatives were designed to avoid communities and neighborhoods, where feasible. This proved to be more difficult for the alternatives that were sighted within close proximity to existing project area roadways such as KY 80. There are two small communities, Shopville and Stab, present along KY 80 and near the proposed alignments.

KY 80 Modified and KY 80 Shifted would directly impact Shopville, a small community situated along KY 80 and US 461. This community contains several businesses, Shopville Elementary School and a number of residences. The residential land use is generally located to the south of KY 80, while the businesses and the school are located north of the roadway. A four-lane, access-controlled facility such as KY 80 Modified and KY 80 Shifted would divide this community, isolating the residential and commercial/public resources of the area. The community of Stab, while not directly impacted by those alignments, would require access to the proposed facility. Improved access between the communities of Stab and Shopville, and to Somerset and the region will provide the area with safer, more efficient travel to and from government, medical and business services. The

improved travel conditions are anticipated to provide increased social and economic interaction between the communities of Shopville and Stab and with Somerset and the region that will be served by Interstate 66.

Proposed Build Alternative KY 80 Shifted would relocate five commercial enterprises in the small community of Shopville. Additionally, this alignment would directly impact the parking area of Shopville Elementary School, which also serves as the local school bus depot and re-fueling facility. Other Shopville community resources impacted by KY 80 Shifted include two cemeteries. Proposed Build Alternative KY 80 Modified would relocate four commercial enterprises in the small community of Shopville. This proposed alignment would also impact a portion of the Shopville City Park and one cemetery.

▲For more information see section 5.3.7

Environmental Justice

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations” ensures that federal departments and agencies identify and address disproportionately high affects and adverse human health or environmental effects of their policies, programs, and activities on minority populations and low-income populations. Special consideration was given to Executive Order 12898 throughout the planning and evaluation of the proposed project.

The proposed project is not expected to have any significant adverse long-term or short-term affects on the safety and health of the surrounding communities. The potential for human health implications or unknown risks from the construction and maintenance of the proposed facility are considered to be remote. Construction of the proposed project is not expected to set precedents for carrying out other similar actions in area.

Local officials from the fiscal court and KYTC right of way agents were consulted to determine if family clusters or socially interdependent clusters may be affected by the project. Family or social clusters are characterized as multiple residences existing either on one parcel or a larger, segmented parcel of property that rely upon each other for various necessities that would not be affordable if they did not live close to

each other (i.e., a resident may provide automobile rides or use of a telephone for medical or other services). No family or socially interdependent clusters were identified within the build alternative right of way limits, and none appear to be segmented (divided) by the project. If such relationships are identified during the design or construction process, the Project Team will work with KYTC right of way officials to ensure that these groups are relocated to a parcel that will enable them to remain intact.

The evaluation of this project has not revealed any concentration of low-income and/or minority populations along the alternative alignments that are not typical throughout the project area. Additionally, based on windshield surveys and conversations with residents affected by the project, no disproportionately high and adverse human health or environmental effects on minority and low-income populations are anticipated to result from the proposed project.

▲For more information see section 5.3.4

Farmland Impacts

The Farmland Protection Policy Act requires identification of proposed actions that would affect land classified as prime and unique farmland. The U.S. Natural Resources Conservation Service (NRCS) administers this act to preserve farmland.

In accordance with 7CFR, Part 658 of the National Farmland Protection Policy Act, Land Evaluation criteria and Site Assessment criteria (LESA) were applied to determine effects to farmland within the project area. The land evaluation criterion is a relative value (from 0 to 100) for agriculture production of the farmland to be converted based on information within the local government’s jurisdiction. The site assessment criteria are designed to assess important factors other than the agricultural value of the land and consider not only the land currently being farmed, but also the land use around the project area and whether or not that land use is urban, non-urban, or in transition. Each factor within the site assessment criteria is assigned a score relative to its importance. Sites that receive a total site assessment score of 160 points or less are given a minimal level of consideration for protection. The Farmland Protection Act recommends higher protection for alternatives with scores of 160 or higher, and requires agencies to

consider uses of land that is not farmland (e.g., residential or industrial areas), which would have lower LESA scores unless there are other overriding considerations.

On June 30, 2004 Form AD-1006 Farmland Conversion Impact Rating was mailed to representatives of the Natural Resources Conservation Service (NRCS) for the two project area counties; Mr. Thomas Jones, District Conservationist for Pulaski County, and Mr. Jeff Moore, District Conservationist for Laurel County. Please refer to Appendix B for copies of these letters, as well as the completed AD-1006 Form.

Pulaski County Farmland Impacts

In Pulaski County, impacts to area farmlands were assessed for the following Build Alternatives; Alternative B, Alternative K, Alternative D and the common alignment of Alternative B-D. None of these proposed alignments scored above the 160-point threshold requiring mitigation for Farmland Impacts. Impacts to area farmlands were not assessed for Alternatives KY 80 Modified and KY 80 Shifted. These Alternatives are similar to Alternative K in respect to their proposed alignment, and therefore would be similar in the effects to project area farmlands. However, re-coordination with the Pulaski County NRCS office is in progress, the results of which will be appended to the Socioeconomic Baseline Report.

Laurel County Farmland Impacts

In Laurel County, impacts to area farmlands were determined for the following Build Alternatives; Alternative G, Alternative H, Alternative I, Alternative L and Alternative M. The Farmland Protection Act recommends higher protection for alternatives with scores of 160 or higher, and requires agencies to consider uses of land that is not farmland (e.g., residential or industrial areas), which would have lower LESA scores unless there are other overriding considerations. All alternatives were found to have scores lower than 160.

Farmland impacts for each alternative are shown in Table S-1 at the end of this chapter.

▲For more information see section 5.2.58

S.3.4 Natural Resource Impacts

Terrestrial Habitat Impacts

The new, cross-country sections of the proposed I-66 construction may lead to fragmentation of forested areas and other habitat for wildlife. Fragmentation of habitat is always detrimental to the wildlife species occupying the area. Travel corridors may be disrupted, and may lead to increased road kill of animals. Migratory birds are especially vulnerable to fragmentation of forested areas. Disturbance to floodplain-forested areas could have a detrimental effect on the migratory species that use them. As habitat shrinks, they are more prone to predatory animals and nest-predation, resulting in lower productivity rates. The construction of I-66 section from Somerset to London will result in a long-term loss of habitat, biomass, and primary productivity with the removal of farms, forested areas, and wetlands through their conversion to pavement. Wildlife habitat may be displaced by fills and otherwise eliminated by construction activities. For a summary of impacts, including acreage and fragmentation, refer to Table S-2 at the end of this chapter.

▲For more information see sections 5.2.44 – 5.2.47

Aquatic Habitat Impacts

The reduction in aquatic productivity resulting from sedimentation is both an irreversible commitment of resources and an unavoidable adverse impact. The permanent changes that will be required in the affected streams are an irreversible commitment of resources. Short-term impacts will include the disturbance of aquatic and riparian habitat, and an increase in downstream turbidity, dissolved solids, and suspended solids within the area rivers and streams. The implementation of an effective non-point source pollution plan and the application of a stringent sedimentation and erosion control program may reduce adverse ecological impacts. Disturbances will result in temporary adverse impacts to water quality and aquatic life in the above-mentioned streams. For a summary of impacts refer to Table S-2 at the end of this chapter.

▲For more information see sections 5.2.24 – 5.2.30

Wetland Impacts

All proposed Build Alternatives have been designed to avoid impacts to wetlands areas, where possible. However, impacts to these valuable resources remain. Losses to wetland areas would require in-kind mitigation, at ratios determined by the U.S. Army Corps of Engineers. For a summary of wetland acres impacted, refer to Table S-2 at the end of this chapter.

▲For more information see sections 5.2.32 – 5.2.39

Floodplain Impacts

Executive Order 11988, Floodplain Management addresses encroachment to floodplains. Federal agencies must avoid significant impacts to floodplains unless there is no practical alternative. Longitudinal encroachments must be avoided if possible. If it cannot be avoided, the degree of encroachment must be minimized to the greatest extent practicable. FHWA policy requires that all transverse encroachments be supported by analyses of design alternatives through design risk assessment.

Pursuant to Executive Order 11988 "Floodplain Management", the proposed project was determined to be within one or more of the 100 year floodplain of the following streams/rivers:

- Flat Lick Creek
- Stewart Branch
- Buck Creek
- Line Creek
- Rockcastle River
- Sinking Creek
- Little Laurel River

The Pulaski County alternative with the greatest amount of impacts to floodplains is Alternative KY80-Modified (58.78 acres). Sixty-three percent of its impact to floodplains is to the Flat Lick Creek floodplain with 1,622,568 ft² (37.25 acres) of impact. Moreover, this impact is longitudinal at two crossings. The Pulaski County alternative with the least amount of impact to floodplains is Alternative B-D (4.91 acres). Among Laurel County alternatives, Alternative H has the greatest amount of impacts (22.21 acres), primarily to the Little Laurel River (780,690 ft² or 17.92 acres). Alternative G has the second greatest amount of impacts, also mostly to the Little Laurel River (708,541

ft² or 16.27 acres). Alternative M has the least amount of impacts to floodplains among the Laurel County alternatives (4.92 acres). The Rockcastle River floodplain is impacted equally by all Laurel County alternatives (90,162 ft² or 2.07 acres of impacts, each).

Any encroachment onto floodplains will require close coordination with KDOW, and the USACOE. Any development in the floodway is restricted to activities that will not interrupt the natural flow of the waterways. Table S-2 at the end of this chapter shows the floodplain impacts per alternative.

▲For more information see section 5.2.5

Karst Impacts

The nature of the potential impacts due to the presence of karst terrain in the study is two fold. One is the impacts the karst terrain features may have on the project; the other is the impacts the project may have on the karst features or the environment it supports. The impacts the project may have on the karst terrain are detailed in the hydrology and karst fauna sections of the report.

Many of the karst features inventoried in the study are surface expressions of the solutioning (dissolving) of the limestone strata. The dissolution process creates void space in the strata below the surface. The presence of the void space often goes unnoticed until a collapse occurs. The potential of subsurface void space, regardless of the source, is a negative impact on a civil engineering project. Detailed geotechnical and geological investigations are required to minimize the potential impacts at the time of construction. The threat from the formation of karst features post-construction is a risk that is incurred by all projects located in karst terrain.

The potential impacts to the project from the karst terrain are:

- Future occurrence of karst features where they are not currently well-developed.
- Extreme variability in the top of rock profile over short distance can result in cost overruns for deep foundations, if required.

- Additional construction cost to mitigate collapse features encountered during construction.
- Risk of catastrophic collapse of overburden into a cave system.
- Construction cost associated with encountering high volume spring discharge and installation of conveyance systems.
- The relatively shallow soil cover in the karst plains may result in higher construction cost due to importation of embankment fill material and the higher cost of blasting bedrock to maintain practicable vertical roadway profiles.

Table S.3.4-1, on the following page, summarizes general impacts to karst features per alignment. Only Pulaski County alternatives were considered because karst yielding geology is sparse within Laurel County. Each alternative is ranked according to the amount of impacts it has on the resource, with 1 representing the least amount of impact.

The project area karst has been extensively studied for this project. More detailed information is given in chapters 4 and 5 of this document.

▲For more information see sections 5.2.6 – 5.2.22

S.3.5 Cultural Resources Impacts

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by the Council. These regulations, "Protection of Historic Properties" (36 CFR Part 800), became effective January 11, 2001.

Historic Properties

Twenty nine properties were identified within, or in close proximity to, the right-of-way limits as proposed for the Build Alternatives as being listed, or potentially eligible for listing, to the National Register of Historic Places (NRHP). Table S.3.5-1 shows the historic properties and the determination of the alternatives affect on the historic property.

▲ For more information see sections 5.4.2 and 5.4.3

Archaeological Resources

The Cultural Resources investigations described in Chapter 4 resulted in the identification of 26 archaeological sites impacted by the various Build Alternatives. These 26 sites are considered to be potentially eligible for the National Register of Historic Places (NRHP).

The project area was surveyed between September 29, 2003, and June 11, 2004. The surveys focused on areas of high probability for significant archaeological sites. The proposed I-66 project was comprised of six bands, B, D, G, H, I and KY 80. At the time of the survey mapping was limited to small scale maps (1 inch = 24,000 feet) and alignments had not been formulated. A total of 276 acres was surveyed, and due to the lack of details, an additional 19 acres were surveyed outside the study area.

Prior to this survey, 20 archaeological sites have been recorded within the project corridor’s area of study. None of these sites were reinvestigated during the project survey. Examinations of site forms, survey reports and the Office of State Archaeology site

database were conducted, and it appears that 16 sites have not been evaluated for the National Register of Historic Places. If these sites are affected by the I-66 project, further archaeological investigation will be necessary. The sites are: 15Pu188, 15Pu216, 15Pu217, 15Pu218, 15Pu219, 15Pu245, 15Pu249, 15Pu253, 15Pu254, 15Pu255, 15Pu257, 15L142, 15L143, 15L171, 15Pu324, 15Pu328. Upon selection of the Preferred Alternate, the appropriate sites as listed above will require further archaeological investigation. The nature of further investigations should be based upon the recommendations provided by the surveyor in the site forms and survey reports in consultation with KYTC. The United States Forest Service shall be consulted for sites that have been recorded within the Daniel Boone National Forest.

Should a Build Alternative be selected as the Preferred, attempts will be made to shift the selected alignment to avoid the archaeological sites that are potentially eligible for listing in the NRHP. Each potentially eligible site would be examined to determine whether or not the site is eligible for listing in the NRHP, as well as the assessment of project impacts pursuant to Section 106. If the alignment shifts are not feasible and prudent, coordination with the appropriate Indian Tribes and the Kentucky SHPO will continue in order to develop a plan to alleviate the project’s adverse effects on the eligible site.

▲ For more information see section 5.4.4

Table 5.2.6-1 Number of Impacts to Karst Features per Alternative

	K	KY80-Shifted	KY80-Modified	B	D	B-D
Feature Type	Impacts					
Closed Depression	43	33	60	14	20	14
Complex Sink	22	17	29	7	14	7
Cave	1	1	2	1	1	1
Disappearing Stream	1	0	0	1	3	1
Epikarst	9	3	7	4	8	4
Grike	1	3	3	0	0	0
Karst Window	2	1	1	0	1	0
Resurgence	1	1	1	0	0	0
Sinkhole	107	93	121	38	59	38
Spring	22	27	34	14	29	14
Sunken Valley	0	0	1	0	0	0
Swallet	2	2	3	1	2	1
Total Number of Features Impacted	211	181	262	80	137	80
Rank	4	3	5	1	2	1

Table S.3.5-1 – Historic Properties and Project Effects

Site Number	Historic Property	Project Alternative Effect
LL 11	First Evangelical Reformed Church	None
LL 69	Maple Grove School	Adverse Effect from Alt. I
LL 98	Sunny Brook School	None
LL 182	Johnson House on W. Laurel Road	Adverse Effect from Alts. H,L
LL 183	Wyan House on W. Laurel Road	Adverse Visual Effect from Alts. H,L
LL 232	Old Cold Hill School	None
PU 59	Buck Creek Bridge	Adverse Effect from Alts. K, 80 Modified, 80 Shifted
PU 62	James-Hansford House	Adverse Noise Effect from Alt. 80 Modified
PU 65	James Family Cabin	None
PU 71	Sowder Cabin	None
PU 221, 222	Whitaker Home Place and Cemetery	None
PU 224	Cooper School	None
PU 274	Burdine School No. 1	None
PU 297	Abandoned House	None
PU 301	Short Creek School	None
PU 337	Daryl Whitaker House	Adverse Visual Effect from Alt. 80 Shifted
PU 375	Sinking Valley School House	None
PU 377	Leo Gilliland House	Adverse Visual Effect from Alt.B; Adverse Noise Effect from Alts.B, B-D, 80Modified
PU 445	Sewell House	None
PU 452	Simpson House	None
PU 458	Edwards House	None
RK 43	Ruby Adams House	None
RK 44	Post Office and General Store at Billows	None
PU 60	Avis Harper House	None
PU 195	Abandoned House on Soules Chapel Road	None
PU 207	Flat Lick Creek Bridge on Barnesburg Road	None
PU 213	Jeff Harper House	None
PU 441	Phelps House on Pine Hill Road	None

S.3.6 Potential Section 4(f) Impacts

Section 4(f) of the Department of Transportation Act of 1966 requires a project team to determine if feasible or prudent alternatives exist that would avoid land use requiring Section 4(f) evaluation. Land use occurs when property from a Section 4(f) site is:

- Permanently incorporated into a transportation project.
- When there is temporary occupancy of Section 4(f) property that is adverse in terms of the statue’s preservationist purposes.
- When the proximity of the project impacts are so severe that the protected activities, features or attributes that qualify the resource for protection are substantially impaired.

Section 4(f) resources include public parks, waterfowl and wildlife refuges, and all significant historic and archaeological sites that are listed or are eligible for listing on the National Register of Historic Places (NHRP). If land use cannot be avoided, Section 4(f) requires all possible plans to minimize harm to be included in the environmental documentation.

A park, recreational area or wildlife or waterfowl refuge must be publicly owned, and officially designated as a park, recreational area or wildlife/waterfowl refuge to qualify as a Section 4(f) resource.

Historic and archaeological resources that are either listed in, or are eligible for, the NRHP are eligible as Section 4(f) resources. These resources are not required to be publicly owned. Determinations of eligibility for the NRHP are coordinated with the State Historic Preservation Officer (SHPO), which is the Kentucky Heritage Council.

Project Related Section 4(f) Resources

In addition to the historic properties with a potential section 4(f) use, project area resources with the potential for 4(f) impacts include: archaeological sites that may be eligible for the National Register of Historic Places, portions of the DBNF, the Rockcastle River, The Sheltowee Trace National Recreation Trail, and the Shopville Community Park.

Should a build alternative be selected, efforts will be made to avoid the section 4(f) resources. Where avoidance is not possible, efforts will be made to minimize and/or mitigate the project related impacts.

Table S-1 at the end of this chapter shows the number of historic properties affected, the number of section 4(f) properties and mitigation methods for this project.

Avoidance alternatives for each 4(f) resource are given in Chapter 6.

▲For more information see Chapter 6 – Section 4(f) Evaluation/Section 6(f)

S.3.7 Potential Section 6(f) Impacts

Shopville Community Park
The KY 80 Shifted Alternative would impact the entire Shopville Community Park. The park was constructed, in part, using Land and Water Conservation Funds (LWCF). These funds are provided in the forms of grants as provided by the United States National Park Service. If it is selected, total acquisition of the park would be required, and the park is under Section 6(f) protection, which states that such resources must not, “without the approval of the Secretary (of the Interior), be converted to (anything) other than public outdoor recreation uses. The Secretary shall approve such conversion only if he finds it to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as he deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location.”

Measures to Minimize Harm
The Governor’s Office for Local Development (GOLD), was contacted. GOLD is the State Liaison Agency for the United States Department of Interior, National Park Service (NPS). It has been determined that the Shopville Community Park, located within the town of Shopville in Pulaski County, has been purchased in part with a Land and Water Conservation Fund (LWCF) grant for \$53,400 in 2001. The LWCF program provides matching grants to state and local governments for the acquisition and development of public outdoor recreation areas and facilities. The program is intended to create and maintain a nationwide legacy of high quality recreation areas and facilities, and to stimulate non-federal investments in

the protection and maintenance of recreation resources across the United States. If the KY 80 Shifted alternative is selected, Section 6(f) involvement will be necessary. Section 6(f) requires that all LWCF funded property be replaced with property of similar use and in reasonable proximity to the impacted property. NPS will consider conversion requests if all practical alternatives to the proposed conversion have been evaluated, if fair market values (appraisals) of the affected property and its identified replacement property have been conducted, and if the proposed replacement property is of reasonable equivalent usefulness and location.

GOLD and the Pulaski County Fiscal Court were contacted on May 3, 2005, to determine if LWCF funds were involved in the development of the Shopville Park. Upon confirmation, both agencies were notified that if KY 80 Shifted is selected as the Preferred Alternative, the appropriate actions will be taken to ensure the impacted property is replaced with an appraised, identified property that is suitable to the community, the fiscal court and the National Park Service at an equitable, fair market value for similar land use. Upon identification of the intended replacement property, the Pulaski County Fiscal Court will provide appraisal values for both the affected property and the replacement property for review and approval to GOLD. The appraisals and a Memorandum of Agreement between the Pulaski County Fiscal Court and GOLD will be attached in the Appendix of the FEIS if the process is completed prior to submittal of the Final Environmental Impact Statement.

▲For more information see Chapter 6 – Section 4(f) Evaluation/Section 6(f)

S.3.8 Visual Impacts

The project area consists of varied existing landscape districts whose characteristic may be altered by the construction of I-66. The visual quality impacts revolve around viewer group exposure and sensitivity within each landscape district. Impacts and general mitigation techniques are presented.

Once final alternative alignments are selected in the next phase of work, specific impacts associated with each of them can be addressed, evaluated and

compared, since the visual resource assessment methodology is an iterative process that is intended to be flexible and adaptive. At that time additional work will be required to depict expected changes in visual resources through simulations or other methods; to meet with community members in order to evaluate viewer response to these changes; to generate additional design guidelines, mitigation strategies, and enhancement concepts; and to address other planning, design and construction management issues.

General Guidelines for Mitigating Visual Impacts

Creating a highway with good visual and aesthetic qualities requires a thorough understanding of the visual environment that the highway passes through, and the application of certain design techniques and methods. Many of the recognizably beautiful roads and highways in the United States are the result of the successful application of time-tested design techniques that improve both the visual character and the drivability of the road. Essentially, these techniques are founded on principles of good visual composition and on imperatives for roadway operation and safety.

Overview of Design Guidelines

The design guidelines for this segment of the I-66 project are divided into four categories:

- Physiographic Fit (where and how the highway is positioned in the landscape) Guidelines
- Alignment, Profile and Cross-section Guidelines (roadway divide, curves, cuts and fills)
- Roadside Guidelines (primarily focused on planting and stormwater drainage issues) and
- Highway Structure Guidelines (designing bridges, walls, ramps, etc. to fit into the surrounding landscape)

Many of the guidelines overlap both thematically and categorically, even though they are only listed in one category. The general recommendations presented in the Visual Resource Assessment (May 2005) provide categorical information on improving visual quality. There are design guidelines that follow the general recommendations for each category above and application of design features to incorporate the above mentioned categories in the interstate’s design can provide benefit to the visual environment.

For more detailed description of the general visual quality impact mitigation techniques or for additional background and methodologies on visual quality assessments, please refer to the Visual Resource Assessment study (May 2005).

▲ For more information see sections 5.2.68 – 5.2.71

S.3.9 Air Quality Impacts

The project area is part of the Appalachian Intrastate Air Quality Control Region and the South Central Kentucky Intrastate Air Quality Control Region. The project area is not located within a Metropolitan Planning Organization (MPO) jurisdiction and therefore inclusion in air quality conformity analyses occurs only in the Statewide Transportation Improvement Plan (STIP). The proposed project is located on page 320 of the conforming state transportation improvement program (Kentucky Statewide Transportation Improvement Program (STIP), Fiscal Years 2001-2006; Kentucky Transportation Cabinet) approved October 2000 and in amendment 2004.109 of the Fiscal Years 2005-2007 STIP approved March 2005. For Pulaski, Laurel and Rockcastle counties transportation control measures are not required pursuant to the Amended Final Conformity Guidelines, September 15, 1997.

Pulaski and Laurel counties are currently in attainment for the transportation related air pollutants. According to the calculated existing and future emissions of CO, the proposed project is not expected to alter the counties’ attainment status or add to the pollutant burden of the Appalachian Intrastate or South Central Kentucky Air Quality Control Regions. All existing and predicted carbon monoxide concentrations are below the one-hour standard of 35 ppm and the eight-hour standard of 9 ppm.

Design-year traffic projections for the individual build alternatives do not exceed those utilized in this analysis for the KY 80 corridor and therefore the future free-flow carbon monoxide concentrations would not exceed those modeled in this study. The proposed I-66, Somerset to London, facility would not cause any violation of the National Ambient Air Quality Standards.

▲ For more information see sections 5.2.61 and 5.2.62

S.3.10 Highway Traffic Noise Impacts

Highway traffic noise was modeled to determine future noise levels within the project area. Properties adjacent to the proposed alternatives were identified as noise sensitive receivers and existing noise levels were recorded using a sound level meter. The noise level at these receivers was then predicted for the build and no-build alternatives utilizing the FHWA Traffic Noise Model Version 2.5 (TNM 2.5) computer prediction model. The USDOT Title 23 Code of Federal Regulations (CFR) Part 772 establishes design noise level/land use relationships and sets Noise Abatement Criteria (NAC) that are used to determine when a receiver has a noise impact due to the project. A receiver is determined impacted if the predicted noise level approaches (within 1 dBA Leq) or exceeds the NAC for its land use type. A receiver is also determined to be impacted by the project if the predicted future noise level is greater than or equal to 10 dBA Leq above existing noise levels.

Existing noise levels were recorded at 72 receiver sites. The 72 sites currently have existing measure noise levels ranging from 32.1 to 69.0 dBA Leq. The design year (2030) No-Build adjusted noise levels are predicted to range from 35 to 75 dBA Leq, and the design year (2030) Build adjusted levels are predicted to range from 35 to 80 dBA Leq. A detailed discussion of noise impacts by alternative is located in chapter 5.2.64.

The noise impact abatement tables (table 5.2.63-1 in appendix C) show the receivers and their existing, no-build and build noise levels for the alternatives as well as their NAC value and category. The final column tries to describe the likeliness of barrier abatement for those receivers that are impacted by the given alternative. The designation “A” indicates that an impact is present that needs to be further investigated for the feasibility/reasonableness of barrier abatement. Those receivers with a designation of “A” will be analyzed further if a build alternative is chosen as the preferred alternative. The analysis will include but is not limited to: cost-effectiveness analysis, safety assessment, on-site analysis, and public involvement. Impacts with a designation of “B” are those that do not appreciably alter future noise levels and barrier abatement is generally not considered reasonable. Those impacted receivers falling in category “B” generally represent those receivers that are in

proximity to existing facilities, whose noise level is dependant on existing transportation infrastructure and therefore project related build facilities do not significantly increase future noise levels in relation to the no-build. These receivers, due to the limited noise attenuation relative to the no-build, generally do not meet cost-effectiveness criteria. Impacts with a designation of “C” are isolated receivers, for which barrier abatement is generally considered infeasible. In addition to barrier analysis, abatement measures other than barriers will be investigated if a build alternative is chosen as the preferred alternative.

▲ For more information see sections 5.2.63 – 5.2.67

S.3.11 Hazardous Materials Impacts

A Phase I Environmental Site Assessment (ESA) technical report was conducted in accordance with the scope and limiting conditions set forth in the American Society for Testing and Materials (ASTM) practice 1527. Recognized Environmental Conditions (RECs) were identified for properties within, or adjacent to, the proposed right-of-way limits of the Build Alternatives under consideration. The goal of this Assessment was to determine the potential presence of aboveground and/or underground storage tanks, hazardous wastes or materials, solid and special wastes and areas of potential hazardous waste concerns which may pose a threat to human health and/or the environment. The results of the Phase I ESA were utilized to determine the need for Phase II Site Assessments.

There are a total of eleven proposed alternatives extending from Somerset to London, Kentucky. Of the eleven proposed alignments, two generally follow the existing KY 80 corridor and nine are on a new location.

All eleven proposed alternatives had sites that were investigated for the presence of RECs. After careful research and consideration of each of the site’s individual characteristics, several of these sites have been recommended for additional work, should a build alternative be selected as the Preferred Alternative. There are nine alternatives that impact sites recommended for additional work. Two proposed alternatives, D and I, do not impact any sites recommended for further study. Please refer to the summary table S-1 at the end of this chapter for a

breakdown of the proposed build alternatives, their associated number of impacts to hazardous materials sites.

▲ For more information see section 5.2.60

S.3.12 Construction Impacts

Construction activities, associated with the proposed action, would have temporary impacts to ambient noise levels, water quality, air quality, and terrestrial habitat in the immediate vicinity of the project.

It shall be the responsibility of the KYTC to monitor construction noise and advise the contractor of violations of the maximum allowable noise levels.

Water quality impacts through erosion and sedimentation will be temporary and controlled through the use of Best Management Practices (BMP). All appropriate permits for construction-related impacts will be required.

Air pollution, associated with the creation of airborne particles, will be effectively controlled by watering or by the application of calcium chloride and through the use of BMP.

Sequence of construction and traffic maintenance will be planned and scheduled to minimize traffic delays throughout the project. Signs will be utilized, where appropriate, to provide notice of road closures to the traveling public. Local news media will be notified in advance of construction-related activities that could excessively inconvenience motorists. Access to all property will be maintained to the greatest extent practicable.

The removal of debris and structures will take place, in accordance with local and state regulation agencies permitting this operation. The contractor will be held responsible for methods of controlling pollution in borrow pits, other material pits, and areas used for disposal of waste materials from the project. Temporary erosion control features would include temporary seeding, sodding, mulching, sandbagging, slope drains, sediment basins and checks, artificial coverings and berms. The construction impacts may be mitigated using the following methods: keep proposed grades near existing pavement elevations so that traffic can be easily maintained; develop and maintain traffic

plan during construction; develop construction sequence prior to construction; employ all practicable methods of silt, erosion, noise and emission controls, and provide for fueling and concrete washout areas with specific measures to contain pollutants.

Kentucky Natural Resources and Environmental Protection Cabinet.

▲For more information see sections 5.2.17, 5.2.30, 5.2.62, 5.2.67; and resource specific mitigation discussions in Chapter 5 pertaining to construction activities, avoidance, minimization and mitigation (e.g. Rockcastle River crossing design and construction commitments for freshwater mussel species, see 5.2.52).

S.3.13 Unresolved Issues and Permits Required

Unresolved Issues

The Section 106 process is an ongoing effort in which the first and second Section 106 meetings have occurred and consulting party comments have been considered in the resource and project evaluations.

▲For more information see section 8.2

KYTC is currently coordinating with the Kentucky Division of Water for compliance with the Kentucky Wild Rivers regulations for the Rockcastle River crossing.

Required Permits

A Department of the Army permit subject to Section 404 of the Clean Water Act will be necessary. Federal permits are required for projects involving the discharge of dredged or fill material into waters or wetlands of the United States. These permits must be obtained before conducting any activity that obstructs or alters any of the waters by excavating, filling, or crossing any such waters.

Any persons who conduct any activity involving the alteration of waters of the State of Kentucky will require a permit. Examples of stream alterations include dredging, bank stabilization, straightening, and alteration of up to one acre of wetland, construction of road crossings of waters. Water quality standards will be in compliance with Section 401 of the Clean Water Act (Public Law 95-217). Application for Section 401 Water Quality Certification will be made to the

Table S-1 – Interstate 66 Project Related Impacts to the Human Environment

Composite Impact Summary per Alternative Combination (Human Environment)												
Alternatives	Impacts											
	Residential Relocations (s=single residence; m=mobile home)	Business Relocations	Number of Community Resources Displaced	Acres of Prime Farmland Converted	Hazardous Materials Sites Recommended for Phase II	Air Quality Sites Exceeding NAAQS	Noise Receivers Impacted	Representative Noise Receivers Impacted	Number of Historic Properties Affected	Number of 4(f) Resources Used	Number of Section 6 (f) Resources Impacted	Number of Archaeological Sites Potentially Affected
Pulaski County Alternative												
Alt. K	10s/9m	0	0	163.3	2	0	18	74	1	2	0	20
KY 80 Shifted	22s/22m	5	1	142.0	4	0	13	66	2	3	1	20
KY 80 Modified	11s/12m	4	0	197.0	4	0	19	85	2	3	0	20
Alt. B	10s/6m	1	0	168.0	2	0	11	38	1	2	0	8
Alt. D	6s/8m	0	0	58.5	0	0	13	42	0	1	0	8
Alt. B/D	9s/5m	0	0	71.8	2	0	15	46	0	1	0	8
Laurel County Alternative												
Alt. G	56s/51m	0	0	87.0	6	0	13	114	0	2	0	6
Alt. H	39s/39m	1	0	96.0	1	0	12	125	2	4	0	3
Alt. I	24s/14m	0	0	77.0	0	0	16	137	1	3	0	8
Alt. L	27s/34m	0	0	104.0	5	0	12	117	2	4	0	3
Alt. M	10s/42m	0	0	81.0	6	0	14	114	0	2	0	7
Alternative Combinations (From Above; One Pulaski County Alternative + One Laurel County Alternative = I-66 Project from Somerset to London)												
No Build	0	0	0	0	0	0	0	0	0	0	0	0
K-G	66s/60m	0	0	250.3	8	0	31	188	1	4	0	26
K-H	49s/48m	1	0	259.3	3	0	30	199	3	6	0	23
K-I	34s/23m	0	0	240.3	2	0	34	211	2	5	0	28
K-L	37s/43m	0	0	267.3	7	0	30	191	3	6	0	23
K-M	20s/51m	0	0	244.3	8	0	32	188	1	4	0	27
KY80 Mod-G	67s/63m	4	0	284	10	0	32	199	2	5	0	26
KY80 Mod-H	50s/51m	5	0	293	5	0	31	210	4	7	0	23
KY80 Mod-I	35s/26m	4	0	274	4	0	35	222	3	6	0	28

Table S-1 – Interstate 66 Project Related Impacts to the Human Environment

Composite Impact Summary per Alternative Combination (Human Environment)												
Alternatives	Impacts											
	Residential Relocations (s=single residence; m=mobile home)	Business Relocations	Number of Community Resources Displaced	Acres of Prime Farmland Converted	Hazardous Materials Sites Recommended for Phase II	Air Quality Sites Exceeding NAAQS	Noise Receivers Impacted	Representative Noise Receivers Impacted	Number of Historic Properties Affected	Number of 4(f) Resources Used	Number of Section 6 (f) Resources Impacted	Number of Archaeological Sites Potentially Affected
KY80 Mod-L	38s/46m	4	0	301	9	0	31	202	4	7	0	23
KY80 Mod-M	21s/54m	4	0	116	10	0	33	199	2	5	0	27
KY80 Shifted-G	78s/73m	5	1	229	10	0	26	180	2	5	1	26
KY80 Shifted-H	61s/61m	6	1	238	5	0	25	191	4	7	1	23
KY80 Shifted-I	46s/36m	5	1	219	4	0	29	203	3	6	1	28
KY80 Shifted-L	49s/56m	5	1	246	9	0	25	183	4	7	1	23
KY80 Shifted-M	32s/64m	5	1	223	10	0	27	180	2	5	1	27
B-G	66s/57m	1	0	255	8	0	24	152	1	4	0	14
B-H	49s/45m	2	0	264	3	0	23	163	3	6	0	11
B-I	34s/20m	1	0	245	2	0	27	175	2	5	0	16
B-L	37s/40m	1	0	272	7	0	23	155	3	6	0	11
B-M	20s/48m	1	0	249	8	0	25	152	1	4	0	15
D-G	62s/59m	0	0	145.5	6	0	26	156	0	3	0	14
D-H	45s/47m	1	0	154.5	1	0	25	167	2	5	0	11
D-I	30s/22m	0	0	135.5	0	0	29	179	1	4	0	16
D-L	33s/42m	0	0	162.5	5	0	25	159	2	5	0	11
D-M	16s/50m	0	0	139.5	6	0	27	156	0	3	0	15
B/D-G	65s/56m	0	0	158.8	8	0	28	160	0	3	0	14
B/D-H	48s/44m	1	0	96	3	0	27	171	2	5	0	11
B/D-I	33s/29m	0	0	164	2	0	31	183	1	4	0	16
B/D-L	36s/39m	0	0	200	7	0	27	163	2	5	0	11
B/D-M	19s/47m	0	0	158	8	0	29	160	0	3	0	15

Table S-2 – Interstate 66 Project Related Impacts to the Natural Environment

Composite Impact Summary per Alternative Combination (Ecological Resources)																		
Alternatives	Impacts																	
	DBNF Holdings (acres)	Cliffline Habitat (acres)	DBNF Old Growth Prescription Areas (acres)	DBNF Riparian Prescription Areas (acres)	Forested Habitat (acres)	Federal Listed Species* (# of sites) ¹	Forest Fragmentati on (linear feet)	Non federal Listed KSNPC Species** (# of sites) ¹	Karst Features (# of sites) ¹	Perennial Stream (linear feet)	Intermittent Stream (linear feet)	Ephemeral Stream Impacts (linear feet) ²	Floodplain Impacts (acres)	Wetlands (assigned impact value) ³	Jurisdictional Wetlands (acres)	Wild and Scenic River and Wild River (acres)	Appalachian Mesophytic Forest (acres) ⁴	High Quality Mussel Habitat (acres) ⁵
Pulaski County Alternative																		
Alt. K	5.90	19.10	0	112.75	481.88	11	2553	1	211	19,926	17,140	11,148	6.50	7.19	6.90	5.42	0	0.10
KY 80 Shifted	5.90	19.07	0	103.62	514.31	11	0	0	181	21,493	15,847	9,977	15.32	13.19	7.37	5.49	0	0.05
KY 80 Modified	5.09	18.57	0	112.63	568.99	13	0	1	262	26,041	15,603	12,034	58.78	8.24	9.84	6.22	0	0.10
Alt. B	9.90	19.31	0	93.51	499.54	11	2553	0	80	14,113	13,636	11,251	5.59	4.99	4.43	5.46	0	0.20
Alt. D	15.22	18.98	0	24.45	606.66	12	28,488	2	137	8,787	20,097	19,671	7.02	5.79	3.52	5.45	0	0.46
Alt. B/D	15.22	18.98	0	24.45	485.37	11	2,857	0	80	7,797	14,739	9,176	4.91	4.22	3.26	5.45	0	0.19
Laurel County Alternative																		
Alt. G	192.07	71.55	0	134.08	399.04	4	8,108	0	0	23,642	17,961	26,678	18.34	14.10	13.84	13.81	3.13	0.61
Alt. H	258.77	47.12	30.61	142.50	433.19	3	26,755	0	0	17,293	21,528	30,759	22.21	23.93	13.07	13.81	3.13	0.68
Alt. I	365.99	86.53	33.45	155.62	569.19	4	34,902	0	0	17,103	19,237	26,139	6.35	10.10	5.85	13.81	0	0.58
Alt. L	192.07	57.49	0	123.99	406.94	3	8,313	0	0	17,278	17,961	22,171	6.65	22.84	11.16	13.81	3.13	0.69
Alt. M	192.07	71.55	0	134.08	407.83	4	12,493	0	0	21,797	16,945	21,009	4.92	25.51	11.77	13.81	3.13	0.61
Alternative Combinations (From Above; One Pulaski County Alternative + One Laurel County Alternative = I-66 Project from Somerset to London)																		
No Build	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K-G	197.97	90.64	0	246.83	880.92	15	10,661	1	211	43,568	35,101	37,826	24.84	21.29	20.74	19.23	3.13	0.71
K-H	264.67	66.21	30.61	255.25	915.07	14	29,308	1	211	37,219	38,668	41,907	28.71	31.12	19.97	19.23	3.13	0.78
K-I	371.89	105.63	33.45	268.37	1051.07	15	37,455	1	211	37,029	36,377	37,287	12.85	17.29	12.75	19.23	0	0.78
K-L	197.97	76.59	0	236.74	888.82	14	10,866	1	211	37,204	35,101	33,319	13.15	30.03	18.06	19.23	3.13	0.69
K-M	197.97	90.64	0	246.83	889.71	14	15,046	1	211	41,723	34,085	32,157	11.42	32.70	18.67	19.23	3.13	0.71
KY80 Mod-G	197.16	90.12	0	246.71	968.03	17	8,108	1	262	49,683	33,564	38,712	77.12	22.34	23.68	20.03	3.13	0.71
KY80 Mod-H	263.86	65.69	30.61	255.13	1002.18	16	26,755	1	262	43,334	37,131	42,793	80.99	32.17	22.91	20.03	3.13	0.78
KY80 Mod-I	371.08	105.10	33.45	268.25	1138.18	17	34,902	1	262	43,144	34,840	38,173	65.13	18.34	15.69	20.03	0	0.78

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¹ Indicates direct impacts (i.e., the number of times an alternative crosses an area with a known federal or KSNP-listed species or karst feature.
² Figures were adjusted to account for ROW roadway drainages.
³ Figures were adjusted to account for weighting based on Cowardin wetland classification and wetland function and value, and ROW roadside drainages.
⁴ After adjustment excluding KY80 fill.
⁵ Based on substrate habitat quality for a preponderance of freshwater mussel species (73%) found in a sand/gravel/cobble substrate (Cicerello and Schuster 2003).

Table S-2 – Interstate 66 Project Related Impacts to the Natural Environment

Composite Impact Summary per Alternative Combination (Ecological Resources)																		
Alternatives	Impacts																	
	DBNF Holdings (acres)	Cliffline Habitat (acres)	DBNF Old Growth Prescription Areas (acres)	DBNF Riparian Prescription Areas (acres)	Forested Habitat (acres)	Federal Listed Species* (# of sites) ¹	Forest Fragmentati on (linear feet)	Non federal Listed KSNPC Species** (# of sites) ¹	Karst Features (# of sites) ¹	Perennial Stream (linear feet)	Intermittent Stream (linear feet)	Ephemeral Stream Impacts (linear feet) ²	Floodplain Impacts (acres)	Wetlands (assigned impact value) ³	Jurisdictional Wetlands (acres)	Wild and Scenic River and Wild River (acres)	Appalachian Mesophytic Forest (acres) ⁴	High Quality Mussel Habitat (acres) ⁵
KY80 Mod-L	197.16	76.06	0	236.62	975.93	16	8,313	1	262	43,319	33,564	34,205	65.43	31.08	21	20.03	3.13	0.69
KY80 Mod-M	197.16	90.12	0	246.71	976.82	17	12,493	1	262	47,838	32,548	33,043	63.70	33.75	21.61	20.03	3.13	0.71
KY80 Shifted-G	197.97	90.61	0	237.70	913.35	15	8,108	0	181	45,135	33,808	36,655	33.66	27.29	21.21	19.30	3.13	0.66
KY80 Shifted-H	264.67	66.19	30.61	246.12	947.50	14	26,755	0	181	38,786	37,375	40,736	37.53	37.12	20.44	19.30	3.13	0.73
KY80 Shifted-I	371.89	105.60	33.45	259.24	1083.50	15	34,902	0	181	38,596	35,084	36,116	21.67	23.29	13.22	19.30	0	0.73
KY80 Shifted-L	197.97	76.56	0	227.61	921.25	14	8,313	0	181	38,771	33,808	32,148	21.97	36.03	18.53	19.30	3.13	0.64
KY80 Shifted-M	197.97	90.61	0	237.70	922.14	15	12,493	0	181	43,290	32,792	30,986	20.24	38.70	19.14	19.30	3.13	0.66
B-G	201.97	90.85	0	227.59	898.58	15	10,661	0	80	37,755	31,597	37,929	23.93	19.09	18.27	19.27	3.13	0.81
B-H	268.67	66.43	30.61	236.01	932.73	14	29,308	0	80	31,406	35,164	42,010	27.80	28.92	17.5	19.27	3.13	0.88
B-I	375.89	105.84	33.45	249.13	1068.73	15	37,455	0	80	31,216	32,873	37,390	11.94	15.09	10.28	19.27	0	0.88
B-L	201.97	76.80	0	217.50	906.48	14	10,866	0	80	31,391	31,597	33,422	12.24	27.83	15.59	19.27	3.13	0.79
B-M	201.97	90.85	0	227.59	907.37	15	15,046	0	80	35,910	30,581	32,260	10.51	30.50	16.2	19.27	3.13	0.81
D-G	207.29	90.52	0	158.53	1005.70	16	36,596	2	137	32,429	38,058	46,349	25.36	19.89	17.36	19.26	3.13	1.07
D-H	273.99	85.19	30.61	166.95	1039.85	15	55,243	2	137	26,080	41,625	50,430	29.23	29.72	16.59	19.26	3.13	1.14
D-I	381.21	124.61	33.45	180.07	1175.85	16	63,390	2	137	25,890	39,334	45,810	13.37	15.89	9.37	19.26	0	1.14
D-L	207.29	76.47	0	148.44	1013.60	15	36,801	2	137	26,065	38,058	41,842	13.67	28.63	14.68	19.26	3.13	1.05
D-M	207.29	90.52	0	158.53	1014.49	16	40,981	2	137	30,584	37,042	40,680	11.94	31.30	15.29	19.26	3.13	1.07
B/D-G	207.29	90.52	0	158.53	884.41	15	10,965	0	80	31,439	32,700	35,854	23.25	18.32	17.1	19.26	3.13	0.80
B/D-H	273.99	85.19	30.61	166.95	918.56	14	29,612	0	80	25,090	36,267	39,935	27.12	28.15	16.33	19.26	3.13	0.87
B/D-I	381.21	124.61	33.45	180.07	1054.56	15	37,759	0	80	24,900	33,976	35,315	11.26	14.32	9.11	19.26	0	0.87
B/D-L	207.29	76.47	0	148.44	892.31	14	11,170	0	80	25,075	32,700	31,347	11.56	27.06	14.42	19.26	3.13	0.78
B/D-M	207.29	90.52	0	158.53	893.20	15	15,350	0	80	29,594	31,684	30,185	9.83	29.73	15.03	19.26	3.13	0.08

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² Figures were adjusted to account for ROW roadway drainages.
³ Figures were adjusted to account for weighting based on Cowardin wetland classification and wetland function and value, and ROW roadside drainages.
⁴ After adjustment excluding KY80 fill.
⁵ Based on substrate habitat quality for a preponderance of freshwater mussel species (73%) found in a sand/gravel/cobble substrate (Cicerello and Schuster 2003).